

pass into a state of tetanus. From the third pair to the seventh, the irritation causes tetanus of the trunk muscles; and finally, from the seventh to the ninth pair of nerves, the muscles of the posterior extremities. The last segment of the cord was only thoroughly examined. 3. After splitting off of the white and gray matter of the posterior columns, or also a great part of the white lateral columns remains over, then a needle-thrust brings out a tetanus. This never succeeds when with all possible care the remaining parts of the anterior gray horns are removed. 4. Lines drawn at right angles to the long axis of cord may be separated into three segments from the results of the needle-thrusts. The innermost, which begins along the longitudinal furrow and reaches to the median edge of the gray anterior horns, is inactive. The second segment corresponds to the diameter of the column of ganglia. The needle-thrusts which penetrate this segment always bring out tetanus. In the third and remaining segment contractions are called out and so much more certainly, the farther the point of puncture is laid from the circumference of the spinal cord. The place through which an irritation calls out tetanus, can be very sharply defined by a careful introduction of the needle; if it penetrates 0.1 mm and less from the border of the ganglionic mass, then the tetanus does not appear.—*Du Bois' Archiv*, 1882, 5 and 6 Heft.

FEVER.—Dr. W. Finkler has made a most exhaustive study of the phenomena of fever experimentally produced in animals. He made a large number of experiments. Since Tcheschicin first, from experiments announced that there was a centre inhibiting the production of heat, there have been no very accurate methods carried on to prove the fact. Finkler, however, has taken the most accurate method to settle the question; that is, a quantitative estimate of the oxygen absorbed and of the carbonic acid given off. At Pflüger's school at Bonn, it has been found that in guinea-pigs cold increases in a very regular manner the generation of carbonic acid and the consumption of oxygen. In this school it has also been shown that in poisoning with curare the production of carbonic acid and the absorption of oxygen fall greatly, showing that the nervous system is a factor in the tissue metamorphoses. The temperature here also fell. It was also further established that section of the medulla oblongata was followed by similar results, there being here a partial removal of the nervous system. Finkler measured the oxygen consumed and the carbonic acid given off, and compared these with a time unit and the weight of the animal. From his experiments the law is deduced that the consumption of oxygen is greater during the fever-elevation of temperature than takes place by animals not feverish, under like conditions of food and surrounding temperature. He also thinks that in fever there is an increase of carbonic acid given off, due to increased heat-production. When the oxidation passes through the three phases of increase, continuance at a height, and decrease, it corresponds only

in a general way to elevation, continuance at a height, and decrease of temperature. Finkler arrives at the conclusion that fever is a neurosis, mainly a disease of a nervous system, regulating the temperature. Pflüger's theory to explain the regulation of heat is as follows: an automatic centre which presides over the production of heat, and another centre which acts upon the automatic centre as an inhibitory apparatus, and on its side stands in connection with the temperature nerves of the skin, and is set into activity through the action of heat, so that the so-called coldness in general is not an irritant. When the excitation of the inhibitory centre slackens, then the automatic enters into activity, so that coldness of the skin corresponds to increased production of heat, whilst warmth of the skin corresponds to lessened formation of heat. Finkler explains the action of these centres in fever as follows: intense, increased oxidation destroys the substance generating the fever. The chilly feeling and contraction of the capillaries denote increase of warmth-production; that in the first stage of fever a stronger excitation of the automatic centre takes place, because the nerves of the inhibitory centre are in a more or less paralytic state. In the second stage of fever, when the temperature of fever is constant, the relations of the two centres are changed. The production of heat remains as in previous stage, increased to about the same extent. The inhibitory centre has again attained its domination over the automatic, not because the latter in its excitation is toned down, but because the inhibitory centre has again a greater power of conductivity. In the return of the temperature to normal, or the decrease of the fever, here the increase of the tissue-metamorphoses lessens, the excitation of the automatic centre weakens, since the fever-producing material is eliminated. The inhibitory centre which, in the previous stage, had a relative domination over the automatic, now reacts normally or with subnormal irritability. Finkler made an experiment during this period, and found a considerable sinking of the oxidation below normal.—*Pflüger's Archiv*, Band xxix, 3 and 4 Heft., 1882.

HYPNOTISM.—Drs. Tamburini and Seppilli have made a series of studies upon the phenomena of motion, sensation, respiration, and circulation in the state of lethargy, catalepsy, and somnambulism. In the state of lethargy there is nervo-muscular excitability; in the cataleptic state the limbs are plastic. In the state of lethargy the tendon reflexes are exaggerated; in the cataleptic state, greatly diminished. The paradoxical muscular contraction is produced in lethargy with the greatest facility, and not so readily in the cataleptic state. When the paradoxical muscular contraction is produced either in the stage of lethargy or catalepsy, the passage from one state to the other resolves it. In the state of lethargy there is not complete analgesia; in catalepsy it is complete.

In lethargy the ovary, when pressed upon, is hyperæsthetic; in